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AGRICULTURAL PRODUCER PRICES

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AGRICULTURAL PRODUCER PRICE

I. INTRODUCTION

1. The prices relating to agriculture do not include only those of agricultural products, but also of products necessary for agriculture; the price and rent of land as well as the prices of consumption products bought by farmers. The statistics relating to these prices are not essentially different from those of general price statistics of goods and services.

2. Most of the problems which are present when one defines prices of goods and services or when such statistics are compiled are also found in agricultural prices. One would not then examine but the most important of them in this study. On the other hand the prices paid by farmers, that is the prices of the products necessary to agriculture and for consumption of rural families are not dealt with here. The problems concerning these prices are the same as those dealt with in other documents on producer, wholesale and retail prices.

II. NEED FOR AND USES OF STATISTICS ON AGRICULTURAL PRODUCER PRICES

3. Statistics on agricultural producer prices are generally used for purposes of estimation and comparison. By multiplying producer prices by the gross quantities one obtains the gross value of agricultural production for the year. When these calculations are made over a period of several years the chronological series obtained is very useful for studying long-term agricultural trends, particularly if it has been possible to make calculations for each territorial subdivision as well as for the country as a whole.

4. Annual indices of the volume of agricultural production are prepared by calculating the gross value of the agricultural production for each year at a constant price (generally the average price for all the years in the period chosen as a basis for calculating production).

5. In order to be able to evaluate the economic situation of agriculture, it is necessary to compare the prices of agricultural products and those of certain other articles, specifically those required for agriculture. When the data needed for making this comparison are available for a certain number of years it is possible to prepare indices which reflect charges in the purchasing power or terms of trade of agricultural products in the country concerned.

6. The difference between the unit price at which the producer sells an agricultural product and the price received by the wholesaler gives the margin of profit between producer and merchant. It is impossible to study seriously how a major agricultural commodity is marketed without data for measuring the order of magnitude and variations in the profit margins at the wholesale and retail stages.

III. DEFINITION OF AGRICULTURAL PRODUCER PRICES

7. The transactions in which producers participate as sellers cover all distribution circuits, namely, export, wholesale and retail transactions. The agricultural producer price is defined as the real price of the transaction carried out by the producer at the first point of sale for a clearly specified agricultural commodity.

This price does not always correspond to the farm-gate price which is used to evaluate agricultural production for the purpose of preparing accounts for agriculture. It is therefore important to supplement the prices recorded with information on transport and other costs imposed on the product from the time it leaves the farm to the time it reaches the first point of sale.

IV. PRICE CHARACTERISTICS

The price is an amount of money paid by a buyer or received by a seller for the unit of goods exchanged under given conditions. This definition reveals that the price, which is always expressed as a certain amount of money, does not relate only to the notion of unit of quantity of a certain product which must be delivered by the seller and received by the buyer but also relates to all the terms of the transaction. The concept of price is therefore a multidimensional concept which is influenced by the following main characteristics:

1. Unit of measurement

The unit of measurement (or of quantity) to which the price is related must be clearly defined so as to eliminate as far as possible any ambiguity as to the product content. It must also be able to be used for comparisons in time and in space (for example price per kilogramme, quintal or bale of cotton, price per quintal, 60-kilo sack or ton of coffee and so forth). The unit of measurement is not necessarily the weight, volume or number. In transactions involving agricultural products in Africa, buyers and sellers can use other units. In that case it is necessary to estimate the quantities exchanged and to calculate a unit price.

2. Product specification

The price varies according to the quality of the harvest. Accordingly, the specification of the product for which a price is quoted must be such as to preclude any possibility of confusion. The specifications generally selected relate to the nature and quality of the product (for example, variety and grade of cotton, variety and purity of wheat, grade and degree of humidity of tobacco and so forth). Such specification is an important but difficult task. The criteria used to define the product may not be entirely objective or measureable. This is true when product specification is based on quality or on the grading of quality. For example, the commercial value of cotton is determined by the length of the yarn and by the grade of cotton which, in turn, depends on several factors: colour, look of the fibres, cleanness wear and durability which one is supposed to be able to judge from the look of the cotton. Although some of these qualities can be measured scientifically with high-precision equipment, most of them are judged by appearance and here traders may not all agree. One way of dealing with this delicate problem would be to confine oneself, as far as possible, to objective criteria or to specifications prepared or accepted by marketing agencies, the authorities or international bodies.

3. Conditioning

Conditioning means the manner in which the commodity is prepared for sale. This operation has a tremendous influence on the market value of the commodity.

The quality of the product depends as much on how it has been prepared as on its natural components. For example, cotton is first ginned; the fibre is then cleaned and its degree of humidity is brought within the desired range; it is then pressed into bales which are graded according to certain varieties and grades. Wheat is sold cleaned and may be sold in sacks or in bulk; it may also be subjected to a further stage of processing: it may be ground prior to being delivered to the market or exported. Similar operations apply to corn, rice, tobacco, coffee, cocoa and so forth. The more developed the market the more important these operations become. However, in the case of most agricultural products currently marketed in Africa, conditioning is limited to packaging and a few elementary methods of preserving or colouring.

4. Reference period

The reference period is the time when the transaction was concluded. It may be a specific date or a period of the time during which the price of the commodity remains the same. This period may be different from the time the product is delivered.

5. Place of sale

This makes it possible to estimate the transport costs incurred by the commodity between the farm-gate and the first point of sale. It also makes it possible to compare the price of a commodity at the farm-gate and its price at the first point of sale. In both cases it is also necessary to identify the place of origin of the commodity as this also helps in the specification of the commodity.

6. Conditions of sale

These include the quantities involved in the transaction, place and time of delivery (immediate and future), effect of delivery costs, method of payment (cash or credit) direct or indirect interventions by the authorities (taxes on prices, subsidies and charges). When a price is collected all the conditions of the transaction must be explicitly or implicitly specified for they influence prices and may affect the comparability of series of prices over time.

V. COVERAGE OF THE STATISTICS

When collecting statistics on agricultural producer prices the commodity coverage should be as wide as possible, particularly when the statistics are collected for valuation purposes. When choosing the commodities care should be taken to ensure:

- that the commodity or commodities selected are representative of the group;
- that the commodity is properly identified and that its specifications are the same throughout;
- that each group of commodities is represented by two or more items.

For reference purposes a list of commodities is given below. It is not exhaustive and has been so arranged as to group together similar commodities or commodities whose prices are changing in a similar manner.

AGRICULTURAL PRODUCTS

INDUSTRIAL CROPS:

Annual crops:

Groundnuts, cotton, tobacco, sugar cane, cotton seed, sesame, sunflower-seed, pepper, poppy seed, castor beans, flax, hemp, juté etc.

Perennial crops

Cocoa, coffee, tea, olives, dive oil, coconuts, copra, rubber (hevea) sisal, palm kerenels, palm oil, kapok, tan bark, etc.

FOOD CROPS

Cereals: wheat, rice, maize, sorghum, millet, barley, oats, etc.
Pulses: whole beans, broad beans, peas, lentils, chick peas, etc.
Tubers & roots: potatoes, manioc, yams, cocoyams, sweet potatoes, etc.

VEGETABLES

Leafy: cabbage, artichokes, lettuce, spinach, celery, etc.
Fruits: watermelons, cantaloupes, pumpkins, cucumbers, eggplant, tomatoes, sweet peppers, okra, chillies, etc.
Root, bulb and tuberous: green garlic, green onions, carrots, beets, radishes, turnips, etc.
Leguminous: green beans, peas, etc.
Other : Cauliflower, sweet corn
Fruits: oranges, mandarins, lemons, grapefruit, apples, pears, quince, mangoes, apricots, plums, prunes, dates, figs, almonds, avocados, pineapples, bananas, plantains, grapes, papaya, etc.

LIVESTOCK AND POULTRY

Cattle, calves, buffaloes, sheep, lambs, goats, pigs, mules, asses, camels, rabbits, chickens, turkeys, ducks, beehives, etc.

VI. COLLECTION OF AGRICULTURAL PRODUCER PRICES

A. Sources of information

Various sources may be used for obtaining data on agricultural producer prices, the most important ones being marketing agencies and stabilization funds, markets, traders in agricultural products and farmers. Each of these sources has drawbacks and must be carefully examined before the data is used.

1. Marketing agencies and stabilization funds

The role of marketing agencies is mainly to promote the development of markets at home and abroad, to take initiatives designed to organize and improve production, milling and conditioning. Finally, they deal with the purchase of commodities. Stabilization funds are primarily designed to reduce fluctuations in producer prices by operating reserve funds. They also engage in research and implement measures designed to improve the quality of commodities. These two types of bodies which, in principle, are concerned with the main agricultural commodities, particularly exported commodities, have contracts with the farmers while peasants' associations, buyers and co-operatives market the farm products. The marketing agencies and stabilization funds, to which should be added producers' associations, co-operatives and syndicates, are probably some of the best sources of information on agricultural prices. These bodies usually have records of their marketing operations. It is relatively easy to survey prices from these types of sources and this can be done on an exhaustive basis. However, this source has certain shortcomings. The transactions generally cover one or two main commodities. Thus this source has a very limited coverage. Moreover, there may be too many transactions recorded and this may make processing the data very time-consuming. Furthermore, the price specifications may differ.

2. Markets

Crops may be divided into two major categories according to their intended use: crops intended for local consumption (mainly food crops), which are consumed partly on the spot and partly sold on local markets (food and cattle markets); and industrial or cash crops which are sold on large or well-organized markets. Price statistics may be collected on these markets. In this connection, it should be noted that many African countries use markets to collect agricultural prices. However, this method poses delicate problems, both theoretical and practical; the main ones will be dealt with in the paragraph on methods of collection.

3. Traders in agricultural commodities

Traders buy agricultural commodities directly from the farmers on their own behalf or on behalf of third parties. They can be divided into two categories:

(a) Large establishments which may be import-export concerns, manufacturers, wholesalers, etc. They generally have account-books showing details of their transactions.

(b) Small intermediaries who buy agricultural commodities from the farm or on the relevant market for resale to merchants or consumers.

It is not difficult to collect data from the first category. A list of these traders can be drawn up fairly easily in a good many countries. However, utilizing the second group as a source of information presents major difficulties. It is not easy to draw up and keep up-to-date an exhaustive list of such traders. Moreover, they are hard to reach and are not always able to provide the necessary information.

4. Farmers

Farmers, as sellers, are undoubtedly the most natural source from which to obtain information on agricultural producer prices. However, this source is not without its problems. The collection of price statistics at the farm raises the same difficulties as those encountered in the collection of other current agricultural statistics (areas under crop, production and so on). There are too many farmers and each one conducts but a limited number of transactions. Moreover, in many cases they prefer not to divulge any information.

5. Other sources

There are other less importance sources: government and officials operating on the sales circuits; people who have the opportunity to observe the transactions and to collect up-to-date information concerning these; agents responsible for special surveys.

Circumstances necessarily determine the choice of sources. It is possible to use just one source only if all the transactions involving the product(s) are carried out through that source, for example, when marketing is a monopoly. In practice, in most cases it will be necessary to use several sources, inasmuch as if prices are collected from only one source they may be biased. However in such cases efforts must be made to avoid duplication, particularly when the farmer is one of the sources used.

B. Methods of collecting prices

Methods utilized in collecting producer prices vary according to the source used and the commodity. In the case of certain sources, methods are simple and inexpensive. This is true of commodities whose prices are fixed by the Government and which are covered by marketing agencies or stabilization funds. The method used is that of periodic reports from which raw data are obtained. These reports are mailed assuming, of course, that the bodies concerned agree. Before using this source it is necessary to make a list of all the marketing agencies operating in the country and to collect information on the commodities covered by them (specification of products, volume of transactions and so forth). There may be many such agencies, in which case sampling techniques may be used and the agencies stratified by commodity and volume of transactions.

In the case of commodities the price of which is taxed, the statistician must determine whether a considerable number of transactions take place on the free market or on the black market and try to collect price statistics for them.

The method of collecting data by mailing out questionnaires or forms can also be used when a survey is made of traders of agricultural commodities who keep records or sources such as the public services of agricultural banks. When the survey is conducted by mail it is essential to assure those surveyed that the data provided will be treated in strict confidence and will not be passed on to any service that might use the data against them.

In the case of other sources it will be necessary to obtain the information directly using enumerators who collect the data after questioning the sellers or buyers or observing transactions on the markets. In the case of markets or farmers sampling techniques should be used.

Collection at the markets

For sampling purposes a list of all the markets must be compiled together with the following information:

- location of the market;
- periodicity of the market;
- approximate number and category of buyers and sellers;
- general trends in daily, weekly and seasonal variations;
- approximate quantities of goods arriving on the markets and traded;
- varieties, grades and type of conditioning of commodities traded;

After stratification of the markets according to these characteristics the sample to be investigated will be chosen using normal sampling methods. The data will be collected at time intervals determined according to a sampling scheme over time or selected in a systematic manner.

The collection of price statistics on local markets is an extremely delicate matter due to special marketing practices. First the enumerator must ascertain that the transactions are indeed taking place between farmers selling their goods and buyers of agricultural products and that the price is the final price received by the peasant and not the offer price which may change in the course of the bargaining. When the transaction covers an unknown quantity of the commodity for which a global price has been given - and this is very common on African markets - the enumerator will have to weigh or measure the quantities exchanged in order to calculate the unit price. This method is therefore a combination of direct interview and objective measurement. After ascertaining the exact unit price of the commodity, the enumerator will record all the specifications concerning transaction and commodity on his schedule.

Collection at the farms

Only in exceptional cases can data on agricultural producer prices be obtained periodically and without difficulty by mailing out questionnaires. This is true of large properties, State farms and experimental farms. In most cases information must be obtained by interviewing a limited number of farmers. Sampling techniques will therefore be used. In such cases a number of sample villages may be chosen in each district and all the farmers questioned or sample farmers may be selected from a list of farmers after stratification according to appropriate criteria.

General agricultural surveys can also be used to obtain data on prices. In Africa, current agricultural statistics are prepared by sampling techniques using objective measurements carried out by enumerators who visit selected farms several times a year. It is easy for these enumerators on their various visits to the farms to collect data on the prices received by farmers.

C. Preparation of Data

Agricultural price statistics are generally raw data collected from several farmers and relating to several types, varieties and qualities of the same commodity. A large number of prices are thus surveyed and this requires condensation. In this connection a distinction should be drawn between (a) the average price paid to producers in a given region for the entire harvest or part thereof sold during a given period and (b) the average price paid to the producers in a given region for specific varieties (or qualities) of a commodity sold during the same period. The price as defined in (a) above is an average unit value of the harvest sold; that defined in (b) is an average quotation for very specific varieties of the commodity. The former is of greater interest to agriculture as a whole; the latter is of more interest from the commercial standpoint and also from that of research into how to determine the profits which the farmer may obtain from the different varieties cultivated. Condensation of the raw data is carried out by averaging the price quotations. It is recommended that weighted averages be calculated rather than simple arithmetic averages:

(a) The average of the various specifications of the commodity; the price of each commodity for which there is a clear specification should be weighted by the volume of sales;

(b) The average of the various markets; the price statistics collected on the various markets should be weighted by the volume of sales on each market;

(c) The average of chronological price series: to calculate the annual averages, the monthly (or weekly) prices should be weighted by the corresponding volume of sales; similarly, in the case of monthly averages, the weekly (or daily) price should be weighted by the volume of sales. In the case of commodities which are strongly affected by seasonal factors and the prices of which vary considerably over the year it is better to obtain an average of the prices during the peak marketing period rather than calculating a simple arithmetic average when there are no sales figures with which to weight them. The monthly averages of prices for crops should be related to the harvest year for changes in the supply and demand situation - which, in turn, influence prices - are related to it. However, in some cases - for example in the case of annual index numbers - it may be necessary to use the calendar year.

VII. INDEX NUMBERS FOR AGRICULTURAL PRODUCER PRICES

The index numbers for agricultural producer prices should, in principle, take into account all commodities sold by farmers. In fact, it is enough to select a limited number of commodities which account for a large part say 90 to 95 per cent of farmers' total sales in value.

- the commodities are sometimes grouped together and subindices are calculated for each group. The weighted averages of the subindices provide the general index numbers. The quotations must always relate to clearly defined specifications for the articles selected. The various quotations collected for the same article are averaged to obtain the price to be used in calculating the index.

- the formulae utilized to calculate index numbers of agricultural producer prices vary from country to country. When an aggregate formula is used the weighting must be effected by the quantities sold over a given period and the base prices must be the average prices quoted during the base period. When the formula is an average of price relatives the weighting to be applied is the amount of sales during a given period. Both methods overlap in the case of the Laspeyres formula. Weightings are determined by special surveys and are related to the base period used for prices or to any other period which may seem more appropriate. Different methods of weighting may be applied in different regions of the same country.